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ABSTRACT

This study on the role of instruction in encouraging the successful performance of the first-time online catalog user examined three relationships to evaluate the effects of an instructional program: the comparative effectiveness of four instructional methods in orienting users to the online catalog; the influence of an instruction program on user reaction to the online catalog; and the role of instruction in influencing searching accuracy and efficiency over time. A pretest was administered to 253 participants, each of whom then received one of four instructional treatments: online instruction; printed pocket-guide; audiovisual slide/tape program; or librarian-led workshop. Two post-tests were administered, one at the conclusion of the instructional sessions and one six months later. An attitude survey, which measured user reaction to the online catalog, was also administered after the first post-test. An analysis of data collected from the 148 students completing the study indicates that: (1) three instructional methods--the pocket-guide, the audio-visual program, and the workshop--are effective for the first-time user; (2) Pennsylvania State's online catalog is a congenial system; and (3) the effect of online instruction as a "stand alone" method of instruction is unclear. No correlation was found between attitudes toward the online catalog and ability to search it accurately and efficiently. The population inventories, skill surveys, and results are appended. (Author/THC)

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PUBLIC SERVICES IN RESEARCH LIBRARIES

FINAL REPORT FROM
THE PUBLIC SERVICES RESEARCH PROJECTS

Pennsylvania State University

Project sponsored by the General Electric Foundation

Office of Management Studies
Association of Research Libraries
Washington, D.C.
January, 1985

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Seven Association of Research Libraries (ARL) members conducted research on current public services concerns, as part of a Public Services in Research Libraries Project sponsored by the General Electric Foundation and operated by ARL's Office of Management Studies.

Research grants of up to $4,000 were provided for the projects, which were selected in part because of their potential usefulness to academic and research libraries. The subjects include the integration of online catalogs into public services, identification of the unique instructional and research needs of students and faculty in particular disciplines, and the impact of technology on both library users and staff members.

The Public Services in Research Libraries Project was financed by a $250,000 two-year grant from the General Electric Foundation. Now, the Office of Management Studies is offering academic libraries a series of aids to analyze, improve, and adapt their public services programs to changing economic, technological, and user needs. The aids include an assisted self-study process and training activities to benefit public services staff.

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THE EFFECT OF AN INSTRUCTION PROGRAM ON ONLINE CATALOG USERS FINAL REPORT

The Pennsylvania State University Libraries

Mary Ellen Larson, Principal Investigator
Dace Freivalds, Second Investigator

Office of Management Studies
Association of Research Libraries
Washington, D.C.
December, 1984

The Effect of an Instruction Program On Online Catalog Users

The Pennsylvania State University Libraries
Mary Ellen Larson, Principal Investigator
Dace Freivalds, Second Investigator

Abstract

This study, conducted at the Pennsylvania State University Libraries, examines the role of instruction in encouraging the successful performance of the first-time online catalog user. Three relationships were defined in an experimental setting to evaluate the effects of an instructional program: (1) the comparative effectiveness of four instructional methods in orienting users to the online catalog (2) the influence of an instruction program on user reaction to the online catalog and (3) the role of instruction in influencing searching accuracy and efficiency over time. A pretest was administered to study participants, each of whom then received one of four instructional treatments: (1) online instruction (2) printed pocket-guide (3) audio-visual slide/tape program (4) librarian-led workshop. Two posttests were administered, one at the conclusion of the instructional sessions and one six months later. An attitude survey, which measured user reaction to the online catalog, was also administered after the first posttest.

An analysis of collected data indicates three conclusions: (1) three instructional methods, the pocket-guide, the audio-visual program and the workshop, are effective for the first-time user (2) Penn State's online catalog is a congenial system for the first-time user and (3) the effect of online instruction as a "stand alone" method of instruction for the first-time user is unclear. There appears to be no correlation between participants' attitudes toward the online catalog and their ability to search that catalog accurately and efficiently. A poor response rate for the second post-test precluded any conclusive analysis of those results.

Introduction

Librarians at Penn State have spent a major portion of the last four years anticipating the birth of our online information system, LIAS—an acronym which stands for "Library Information Access System." In development since 1975, LIAS is an integrated system that will allow users to identify information about library materials using three subsystems—acquisitions, cataloging and circulation. In the fall of 1983, two portions of LIAS—the online catalog and the circulation subsystem--were finally available to patrons. While this was a joyous event for our systems staff and for our patrons (who had grown weary of the transitional card catalog/COM catalog maze!), the public services staff was a bit uneasy about the prospect of retraining thousands of library patrons weaned on the card catalog. Just how would our users, who include citizens from across the Commonwealth of Pennsylvania as well as university students and faculty, adjust to this revolutionary new library tool?

It seemed obvious that a well designed user education program--with brochures, demonstrations and the like--would do much to create an orderly transition from the printed to the computerized catalog. Having decided this, however, several questions remained:

1. What kind of program would be flexible enough to function in a variety of situations? Penn State is a multi-campus university—in addition to the main campus at University Park, there are 17 two-year campuses scattered across the state, as well as several upper division colleges. A variety of staffing patterns and user requirements exist in this system, necessitating a program which would be effective in several different settings.

2. What kind of program could be executed with minimal staffing? How could existing staff, already pressed to the limit, cope with the inevitable surge of questions that would accompany the appearance of LIAS? There would be little, if any, increase in professional staff to handle this increased workload. Would it be possible to design an effective education program that would be largely self-instructional for the inexperienced user?

3. Was one instructional method particularly effective in training first-time online catalog users? Four instructional tools were available to the staff: (1) a series of online instructions embedded in LIAS (2) the traditional pocket-guide of written instructions (3) a slide/tape audio-visual presentation and (4) a librarian-led workshop. Should one tool figure prominently in our program, or were all tools equally effective in developing user competency?

Clearly, we needed to know more about the effect of an instructional program on the performance of a first-time user. Several articles theorized that instruction should affect user performance, yet few offered empirical evidence that this was so. However, research conducted using the Library Control System (LCS) at Ohio State University suggests that effective online catalog instruction can positively influence user performance. (Pease and Gouke 1982, 279-291; Gouke and Pease 1982, 137-143) One study, in particular, analyzed the success rates of patrons searching an online catalog and demonstrated the effectiveness of instruction when combined with searching experience, in improving patron performance. (Alzofon and Van Pulis 1984, 113-114) Another study demonstrates that, even with an active user education program, patrons can still harbor misconceptions about the features of a particular system. (Steinberg and Metz 1984, 69) Perhaps the most ambitious research is currently in progress at the Northwestern University Library, where a team of librarians is developing a model for online catalog education that can be used with any number of online catalogs. (Baker and Nielsen 1983, 155-166) A key component of this study is the utilization of an unobtrusive data source, the transaction log, to monitor user performance.

As helpful as this research is, it does not explore the role of instruction in determining the success of the first-time online catalog user exclusively. Since it was clear that it would be necessary to conduct a research study to

to answer the questions pertinent to the Penn State situation, the University Libraries applied for and received a grant from the Association of Research Libraries that enabled the following relationships to be examined in an experimental setting:

1. The comparative effectiveness of four instructional methods in orienting users to the online catalog,

2. the influence of a user education program on user reaction to an online catalog, and

3. the role instruction plays in influencing searching performance and efficiency over time.

Penn State and LIAS

The Pennsylvania State University Libraries serve a dispersed campus that includes 17 two-year colleges scattered across the state, a graduate program near Philadelphia, a four-year college near Erie, and an upper division college near Harrisburg, as well as the main campus at University Park. In addition to serving the needs of the University's 60,000 students, the Libraries' collections are available to any state resident. Clearly such a diverse institution requires a library information system that is uniform enough to be interpreted consistently by a wide variety of users, while still retaining a flexibility that accedes to local needs. In response to these requirements, the Libraries developed the Library Information Access System (LIAS), an integrated information system which will provide access to cataloging, circulation and acquisition information through a common terminal. Currently there are over one million records in LIAS, 91% of which are monographs, 5% serials, and 3% theses. The remaining records consist of music recordings and scores, and films. The first two phases of LIAS--the catalog and the circulation subsystem--were available to the public in Fall, 1983.

LIAS is somewhat unique among the online catalogs currently available-- inquiries are initiated by one command, SEARCH, not by several commands as in other systems. By keying in this one command, a user can simultaneously access all retrieval points for a particular entry--title, author, series or subject. It's not necessary for the user to know how his term is used--he needs only to approximate a search term or terms and LIAS will respond with a list of possible entries which might match the search request. These initial entries are displayed in a numbered array on an ENTRY SCREEN; the patron selects the number of the entry he deems most relevant, and LIAS displays a CITATION SCREEN which lists (also in numbered array) specific library materials related to the entry. When the user selects a relevant citation LIAS displays a RECORD SCREEN. This screen provides the traditional "card catalog" type of information--author, title, collation, imprint, tracings. At this point, the user can determine the circulation status of the record by keying in the command STATUS. If the item is ready for circulation, LIAS reports the message "available." If the item is checked out, LIAS indicates the due date and the user may place a "personal reserve" on the item. Online instructions embedded in the system are provided in the form of HELP screens. (Cline 1983, 33-48; Carson 1983, 1-15)

When LIAS first "went public," the initial focus of the Libraries' public services staff was, of course, the first-time user. When research for this project began in the fall of 1983, nearly everyone using LIAS was a first-time user, since the system had been publicly available for only a few weeks. The Libraries then, were an excellent spot to collect data about first-time user performance. The next section details the design and methodology that was used to collect this information.

Methods and Data Gathering

It was determined that the most suitable participants for the LIAS study would be those users who had no prior experience with an online catalog and who spent an "average" amount of time or less in the library doing research (an "average" amount of research time was defined as "spending 2-5 hours per week using library facilities for activity other than studying, socializing or employment"). This information was collected on a screening instrument (the "Study Population Inventory"; see Appendix I) that also collected data about prior computer experience and instruction, and prior library instruction. This instrument was distributed to all student library employees and to interested students in two large group sections of Sociology 1, an introductory course which enrolls students from all colleges in the University. Participants from the Sociology 1 classes were given the incentive of 10 "bonus points" added to their course grade for successful participation in the study. Approximately 350 Study Population Inventories were distributed during September 1983, and 286 of these were returned. Of these 286 potential subjects, 33 were disqualified because of previous online catalog experience, leaving a pool of 253 remaining participants. These students were assigned (using a table of random permutations) to one of four instructional groups (online instruction, audio-visual program instruction, pocket-guide instruction and librarian-led workshop) and one of six test sequences.

A classic pretest/posttest research design was used to collect performance data from study subjects. During October 1983, each participant completed a pretest, then received one of the four instructional treatments listed above. A posttest was administered after the instructional treatment was completed; after a six-month period, another posttest was administered. Each participant received three tests over a period of six months which measured two conditions: performance (which was evaluated by the scores on the one pretest and the two posttests) and efficiency (which was measured by the time each subject needed to complete the test). An attitude survey, which measured user reaction to the online catalog, was administered after the first pretest.

Of the 253 participants who began the study, 105 dropped out without returning the pretest, leaving 148 subjects to receive LIAS instruction. Of these 148 students 53 or 35% were males, 76 or 51% were females and 19 or 13% chose not to respond to the gender question on the inventory form. 121 or 82% of the participants were Sociology 1 students, while 27 or 18% were student library employees. 72% used the library less than two hours per week for research, while 28% spent more than two hours a week for that purpose. 30% admitted having no prior computer experience or instruction, while slightly more than 69% had either owned or used a microcomputer, or had previous computer instruction. Only 36% of the participants had no prior library instruction, while 64% had either completed an instructional project (such as a workbook) or had participated in bibliographic instruction classes.

Of the 148 students who received LIAS instruction, 128 students returned the first posttest, and 109 returned the attitude survey. Only 38 students returned the second posttest, which was administered well after the Sociology 1 course was completed. The movement of subjects through each phase of the study is summarized below:

N	Phase of Study	Date
286	Random assignment of instructional group and test sequence - 33 disqualified	September 1983
253	Subjects receive pretest and instructional group assignment - 105 drop out	October 1983
148	Subjects receive LIAS instruction	October 1983
128	Subjects receive/return posttest 1	October-November 1983
109	Subjects receive/return Attitude Survey	November 1983
38	Subjects receive/return posttest 2	April 1984

It was assumed that an instruction program would have some effect on a user's ability to search an online catalog accurately and efficiently. Based on that assumption, three research hypotheses were established:

1. There is a significant relationship between the degree of human intervention in the teaching method and the effectiveness of initial learning.

2. There is a correlation between instructional method and user reaction to an online catalog.

3. There is a correlation between user experience with an online catalog and searching performance, regardless of instructional method.

To evaluate "instructional group effect" (hypothesis #1), a two-way analysis of variance (using "test sequence" as a blocking factor and "instructional group" as the main factor of interest) was used to compare the improvement in score and time among the four groups; improvement was determined by calculating the differences in score and time between the pretest and posttest 1. Follow-up estimates of the average score and time for each group were used to supplement ANOVA results. A Spearman correlation coefficient was used to evaluate the relationships between: (1) instructional method and user reaction to an online catalog (hypothesis #2) and (2) user experience and searching accuracy/efficiency (hypothesis #3).

Results

The initial analysis of variance calculations for instructional group effect (instructional group effect = posttest 1 - pretest) revealed little differ-

ence in the score or time improvement rate among the four groups. No one group stands out as more proficient than any other. Most of the improvement in score clusters around 4.5 points for each group, while improvement in time is clustered around "-45" minutes and "-15" minutes (improvement in this case is expressed as a negative integer since a larger number, the pretest time, is subtracted from a smaller number, the posttest time). In addition to comparing score/time improvement among the groups, the differences between times, scores and the ratio of score to time were also calculated. In no instance did there appear to be any significant instructional group effect.

However, estimates of the average score and time for each group demonstrated that the online instruction group did not show significant improvement in score between the pretest and the first posttest. This apparent discrepancy in the results between the analysis of variance and the follow-up estimates of group averages occurs because there is too much overlap among the group scores to discriminate among them using analysis of variance—that is, the scores cluster too closely around the mid-to-high 20's to effectively distinguish one group's performance from another's. Yet there is enough precision in our estimates of the average score for each group to distinguish the performance of three of these groups as being significantly different from zero at the p=0.05 level. Only the score of the online group failed to improve significantly.

An estimate of the average score and time improvement for the posttest 2 phase of the project (posttest 2 - posttest 1) revealed no significant improvement for anyone in any area, save for the improvement in time evidenced by the workshop group. However, only 38 of the original 148 respondents (approximately 26%) participated in this phase of the project; therefore the data generated in this part of the study can not be considered a conclusive indicator of performance for all participants. Because of the low response rate to the second posttest no further calculations were performed on this portion of the data. Tables summarizing the average measurements of scores and times for each group are included below:

Posttest 1 Phase

Instructional Group	Posttest 1 Score - Pretest Score	Posttest 1 Time - Pretest Time
Online only	n=27 1.7 s.e.m.=.73	-28.9* s.e.m.=4.61
Pocket Guide	n=34 2.0* s.e.m.=.92	-36.3* s.e.m.=5.80
Audio Visual	n=31 4.0* s.e.m.=1.35	-26.5* s.e.m.=5.23
Workshop	n=36 4.2* s.e.m.=1.29	-25.3* s.e.m.=3.36

*significantly different from 0 at p=0.05, from a two-way analysis of variance of group level means, using "test sequence" as a blocking factor, and "instructional group" as the main effect.

Posttest 2 Phase

Instructional Group	Posttest 2 Score - Posttest 1 Score	Posttest 2 Time - Posttest 1 Time
Online Only	n=8 1.8 s.e.m.=1.53	0.0 s.e.m.=4.63
Pocket Guide	n=13 .08 s.e.m.=.69	-6.0 s.e.m.=2.60
Audio Visual	n=7 0.6 s.e.m.=.81	-9.3 s.e.m.=1.56
Workshop	n=10 1.7 s.e.m.=.54	-9.6* s.e.m.=3.43

*significantly different from 0 at p=0.05, from a two-way analysis of variance estimation of group level means, using "test sequence" as a blocking factor, and "instructional group" as the main effect.

A summary of individual group improvement is included on charts 1 and 2 of Appendix II.

The results of the attitude survey, which measured knowledge of LIAS, attitude toward LIAS instruction, preference for LIAS instead of card/COM catalog and general attitude toward LIAS, showed no significant difference in responses among the groups. These responses were correlated with performance in the posttest 1 phase of the study using the Spearman correlation coefficient. No significant relationship was established. A summary of the responses to the attitude survey is included in Appendix III.

A further analysis of data reveals two additional behavioral patterns. First, participants tended to improve their efficiency rather than accuracy. Indeed performance scores on the pretest were relatively high and remained so on the first posttest as well. Pretest scores clustered around 27.5 out of 30 points for the overwhelming majority of participants, as did posttest 1 scores. (See charts 3 and 4 of Appendix II for further illustration). There is clearer improvement in efficiency, however. Pretest times of the majority of participants clustered around the 37.5 minute and 62.5 minute midpoints. The posttest 1 time indicates a greater concentration of participants at the 37.5 minute and 12.5 minute midpoints. (See charts 5 and 6 of Appendix II for further illustration).

Second, it was evident that one group dropped out significantly at the pretest phase of the experiment: the online instruction group. 105 participants did not return the pretest form—of this group, 35 belong to the online instruction group; this number represents 54% of the group's original population, and is significant at p=0.05. Since participants knew their instructional group assignment when they received their pretest, and in fact could acquaint themselves with online instruction while completing the pretest (since it was embedded in

the system), this result is especially interesting. Another interesting characteristic of the online dropouts was that 51% of them had no prior library instruction, which is significant at p=0.05.

Data was also analyzed to determine if any relationship exists between accuracy and/or efficiency and a number of other factors, such as gender, prior library instruction, prior computer experience and frequency of library use. No significant relationship could be determined in any case.

Conclusions

The data, while it did not support the hypothesis that "human intervention" teaching methods are more significantly successful than any other, does support the premise that three of the four instruction techniques used in this study—the pocket-guide, the audio-visual program and the workshop are effective for the first-time user. This was an important discovery for Penn State librarians, since staffing patterns do not always permit "human-intensive" teaching. Since participants in these three groups tended to respond similarly to LIAS, and appeared to absorb roughly equal amounts of information about the system, there seems little virtue in favoring any one method of instruction. Institutions like Penn State, which by necessity or design fashion multi-faceted instructional programs, can do so with relative assurance that more than one instructional method can be employed profitably.

The responses to the attitude survey are consistent with those of similar studies—users feel positive about the online catalog, and prefer it to the card or COM catalogs. Whether this represents an appreciation of the catalog's more powerful bibliographic capabilities or is simply enthusiastic response to new technology, remains to be seen. In the Spring of 1985, the University Libraries will conduct its first system-wide evaluation of LIAS, using, in part, an instrument similar to the one used in the attitude survey for this project. It will be interesting to compare the data generated in that study to the results of this study.

The relatively high scores on the pretest, coupled with the lengthy amounts of time needed by most participants to complete that exercise, underscores an important facet of LIAS—it tends to support the inexperienced user, giving him enough positive response to continue his search in spite of initially disappointing results. Users tend to keep "doing it" until they complete a successful search, spending whatever time is necessary to complete the task. This phenomenon has been observed in various public areas in PSUL during the past year as well, and the consensus seems to be that LIAS, by always responding to any inquiry with an initial list of entries, creates a supportive environment where the user feels free to experiment and persevere with a new medium.

The performance of the online group was a bit unsettling, and the effectiveness of online instruction as a "stand alone" method of instruction for inexperienced users is unclear. That so many online instruction participants dropped out of the experiment, and so many of these dropouts had no previous library instruction, is cause for some concern. An informal phone survey of the dropouts seems to suggest that first-time user expectations for instruction were not totally met by the online instructions. Indeed, the original authors of the online instructions intended them to function more as "in-system referral" for experienced LIAS users rather than as a primary instructional vehicle for the

novice. The results of this study indicate that online instruction will perhaps be more effective if it is combined with another method of instruction when working with inexperienced users who have no prior library instruction. In some measure, this supports the supposition of librarians who work with MELVYL catalog in the University of California system, who have expressed doubts about the adequacy of online instruction for certain user groups. (Ritch 1984, 7)

In summary, the ARL/OMS grant provided Penn State University Libraries with the opportunity to observe how one particular user group—the inexperienced online catalog user—responds to a new technology—the online catalog. Our understanding of how a multi-faceted user education program influences these reactins is also a bit more precise. With this information in hand, perhaps librarians from other institutions, as well as Penn State, can design an instructional program that is cost-effective and user-effective.

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APPENDIX I:

POPULATION INVENTORIES

NAME: _____

SOCIAL SECURITY #: _____

WHO IS YOUR SUPERVISOR: _____

STUDY GROUP POPULATION INVENTORY:
FIRST-TIME USER REACTION TO LIAS

Instruction: Please circle the letter of the appropriate response to each question.

1. Have you had experience before today using an online or automated library catalog? (BCS or LIAS, for example)

   A. YES
   B. NO

2. I visit the library for "research" purposes (note: "research" is defined as using the library and its materials to complete a class assignment or project, term paper, thesis or dissertation) an average of:

   A. Less than 2 hours per week
   B. Between 2 and 5 hours per week
   C. Between 5 and 8 hours per week
   D. More than 8 hours per week

3. Do you or your parents own a "home" or micro-computer?

   A. YES
   B. NO

4. Have you used a "home" or micro-computer?

   A. YES
   B. NO

5. Have you had prior instruction in computer science, either in high school or college?

   A. YES
   B. NO

If you answered yes, please answer question 6.
If you answered no, please answer question 7.

(CONTINUE ON BACK)

6. Choose the answer or answers which most accurately describe your prior computer science instruction.

   A. Comp. Sci. 100
   B. Comp. Sci. 100 plus one or more advanced comp. sci. courses
   C. Non-Comp. Sci. courses at PSU which required the use of a computer
   D. Non-PSU computer-related courses

7. Have you had prior instruction in the use of the library?

   A. YES
   B. NO

   If you answered yes, please answer question 8
   If you answered no, you've completed this survey.

8. Choose the answer or answers which best describe your prior library experience.

   A. I have completed the Library Resources Workbook
   B. I have had one or more class-related lectures in how to use the library
   C. I have completed one or more Library Studies Courses

--THANK YOU FOR COMPLETING THIS SURVEY--

QUESTIONNAIRE *

1. Since you received instruction in using LIAS, how many hours per week have you spent using the LIAS catalog (on an average)

   A. Less than 1 hour per week
   B. 2-3 hours per week
   C. 3-5 hours per week
   D. More than 5 hours per week

2. My academic standing is:

   A. Freshman
   B. Sophomore
   C. Junior
   D. Senior

3. My major is located in the:

   A. College of Liberal Arts
   B. College of Agriculture
   C. College of Business
   D. College of Human Development
   E. College of Education
   F. College of Engineering
   G. College of Earth and Mineral Sciences
   H. College of Arts and Architecture
   I. College of Science
   J. College of Health, Physical Education and Recreation
   K. Division of Undergraduate Studies

—THANK YOU FOR YOUR PARTICIPATION—

—PLEASE COMPLETE THE SKILLS SURVEY—

* This questionnaire was distributed with Posttest 2

APPENDIX II:

SKILL SURVEY (Versions A, B, C) AND RESULTS

FIRST-TIME USER REACTION TO LIAS:

SKILL SURVEY

The LIAS skill survey consists of 30 multiple choice questions. There is only one correct answer for each question. Take as much time as necessary to complete the survey. Although this is not a "timed test" we would like you to note the time you start and complete the survey. Your responses will be kept confidential and each respondent will remain anonymous when the data is analyzed.

DIRECTIONS

1. Write your **STUDENT NUMBER** in the space provided in the upper left corner of the survey form.

2. Write the **TIME YOU START** the survey in the space provided in the upper left corner of the survey form.

3. Begin the skill survey. Answer every question using LIAS. Circle the correct answer. Use either pen or pencil to complete the survey.

4. Write the **TIME YOU COMPLETE** the survey in the space provided on the last page of the survey form.

5. Return the completed survey to Mary Ellen Larson's office, General Reference Area, E108H Pattee.

— THANK YOU AND GOOD LUCK—

STUDENT NUMBER _____
TIME STARTED _____

FIRST-TIME USER REACTION TO LIAS:

SKILL SURVEY

1. How has the term Backpacking been used in the LIAS catalog?

   a. As title only
   b. As subject only
   c. As both a title and a subject
   d. As title, author, and subject

2. Which of the following names has been used as both an **author** and a **subject** entry?

   a. Alvin Toffler
   b. Marilyn French
   c. John Cheever
   d. Richard Nelson Bolles

3. Which of the following terms has been used as both a **title** and a **subject** entry?

   a. Psycholinguistics
   b. Polar human biology
   c. Camping hygiene
   d. Radicalism in literature

4. How many citations can be found in LIAS for the entry Biofeedback ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

5. How many citations can be found in LIAS for the entry Sports - Physiological aspects ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

6. How many citations are found under the entry Technology transfer used as a **subject** ?

   a. Between 41 and 50
   b. Between 51 and 60
   c. Between 61 and 70
   d. Over 70

Form A186

7. How many citations are found under the entry American Medical Association used as an author ?

   a. Between 1 and 20
   b. Between 21 and 40
   c. Between 41 and 60
   d. Over 60

8. How many citations are found under the entry Folk dancing used as a title ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

9. Which of the following books can be found under the subject entry Energy conservation ?

   a. The energy problem in Greece
   b. 99 ways to a simple lifestyle
   c. An attached solar greenhouse
   d. Energy prices and housing values

10. Which of the following titles can be found under the entry Linguistics - Periodicals ?

   a Historical linguistics and generative grammar
   b. ABC's of languages and linguistics
   c. Brain and language
   d. Communication complexes and their stages

11. How many books in LIAS have the title All the queen's men ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

12. Who wrote the book Time-sharing in commercial banks ?

   a. Richard Stuart Bower
   b. Jerome Bernard Cohen
   c. John C. Benson
   d. Oliver G. Wood

13. Who wrote the book 90 miles from home ?

   a. Charles C. Murphy
   b. A. L. Clements
   c. James L. Bennington
   d. Warren Miller

14. How many items written by Paul Theroux are available in LIAS?

a. Between 1 and 10
b. Between 11 and 20
c. Between 21 and 30
d. Over 30

15. Which of the following books was written by Doris May Lessing?

a. The summer before the dark
b. Particularly cats
c. The golden notebook
d. All of the above

16. Henry Dreyfuss wrote a book assigned the call number TS149.D68. What is its title?

a. Industrial design, a pictorial accounting
b. The measure of man
c. Symbol sourcebook
d. Designing for people

17. Where (in what location) can you find a copy of the book Without me, you're nothing by Frank Herbert?

a. Engineering
b. Pollock
c. Math
d. All of the above

18. Where in Pattee Library can you find a copy of the title The joy of eating French food?

a. West Pattee First Floor
b. Central Pattee Level 4 Blue
c. East Pattee Third Floor
d. Central Pattee Level 6 Yellow

19. Where is the signed, limited edition of the title The dean's December located?

a. Pollock
b. Penn State Room
c. West Pattee First Floor
d. Rare Book Room

20. Where are issues of the title Journal of Advanced Nursing located?

a. All issues in Life Science Ref.
b. East Pattee Third Floor, with Current Issues in Life Science Ref.
c. All issues in East Pattee Third Floor
d. Central Pattee Level 4 Blue, with Current Issues in Periodicals Room

21. What is the call number of the copy of Dictionary of guided missiles and spaceflight located in Engineering?

a. TL793.L28
b. 629.403D561
c. 629.4L317m
d. TL788.D5

Find the record for the title Sacked! and then answer the following three questions.

22. What is the call number?

a. HG459.B4
b. HF5383.P46
c. HQ1101.W64
d. HF5382.7.M63

23. Which of the following items is shelved in the vicinity of your original title?

a. A career conference for your community
b. How to get a better job quicker
c. Career education strategies
d. The world for a market-place

24. Which of the following items is also shelved in the vicinity of your original title?

a. Women state legislators
b. Women and sometimes men
c. Women on top
d. Woman as writer

Find the record for the title Jogging everyone and then answer the following three questions.

25. What is its call number?

a. GV483.W28
b. GV494.W5
c. GV494.F36
d. GV495.B7

26. Which of the following items is shelved in the vicinity of your original title?

a. Run man, run
b. Run away, little girl
c. The Zen of running
d. Run when I say go

27. Which of the following items is also shelved in the vicinity of your original title?

a. A run around the block
b. Keep running
c. Running scarred
d. Run while the sun is hot

28. You have received an overdue notice for an item whose call number is QP34.5.M2. What is the title of the book?

a. Medical physiology
b. The principles and practice of human physiology
c. Dynamic anatomy and physiology
d. Physiology of the human body

29. You have received a recall notice for the item whose call number is 532.5B66. What is the title of the book?

a. A treatise on hydraulics
b. Hydraulics of pipe lines
c. An elementary treatise on hydrodynamics and sound
d. Fluid dynamics and applications

30. You have received an overdue notice for a book whose call number is GV1041.S55 1980. What is the title of the book?

a. The story of the bicycle
b. Ten thousand miles on a bicycle
c. The all new complete book of bicycling
d. Adventure cycling in Europe

TIME COMPLETED _____

FIRST-TIME USER REACTION TO LIAS:

SKILL SURVEY

The LIAS skill survey consists of 30 multiple choice questions. There is only one correct answer for each question. Take as much time as necessary to complete the survey. Although this is not a "timed test" we would like you to note the time you start and complete the survey. Your responses will be kept confidential and each respondent will remain anonymous when the data is analyzed.

DIRECTIONS

1. Write your **STUDENT NUMBER** in the space provided in the upper left corner of the survey form.

2. Write the **TIME YOU START** the survey in the space provided in the upper left corner of the survey form.

3. Begin the skill survey. Answer every question using LIAS. Circle the correct answer. Use either pen or pencil to complete the survey.

4. Write the **TIME YOU COMPLETE** the survey in the space provided on the last page of the survey form.

5. Return the completed survey to Mary Ellen Larson's office, General Reference Area, E108H Pattee.

— THANK YOU AND GOOD LUCK—

STUDENT NUMBER _____
TIME STARTED _____

FIRST-TIME USER REACTION TO LIAS:

SKILL SURVEY

1. How has the term Advertising age been used in the LIAS catalog?

   a. As title only
   b. As subject only
   c. As both a title and a subject
   d. As title, author, and subject

2. Which of the following names has been used as both an author and a subject entry?

   a. Walker Percy
   b. Peter Maas
   c. Tom Sheehy
   d. Nancy Friday

3. Which of the following terms has been used as both a title and a subject entry?

   a. Biological acoustics
   b. Volleyball
   c. Human folly
   d. Liberal democracy

4. How many citations can be found in LIAS for the entry Analytic geometry ?

   a. Between 1 and 20
   b. Between 21 and 40
   c. Between 41 and 60
   d. Over 60

5. How many citations can be found in LIAS for the entry German language - Dictionaries ?

   a. Between 1 and 20
   b. Between 21 and 40
   c. Between 41 and 60
   d. Over 60

6. How many citations are found under the entry Censorship used as a subject ?

   a. Between 1 and 15
   b. Between 16 and 30
   c. Between 31 and 45
   d. Over 45

7. How many citations are found under the entry International Business Machines Corporation used as an author ?

   a. Between 31 and 40
   b. Between 41 and 50
   c. Between 51 and 60
   d. Over 60

8. How many citations are found under the entry Soil science used as a title ?

   a. Between 1 and 15
   b. Between 16 and 30
   c. Between 31 and 45
   d. Over 45

9. Which of the following books can be found under the subject entry Human engineering ?

   a. Designing an experimental engineering curriculum component
   b. Design at work
   c. Design and analysis
   d. Design for the real world

10. Which of the following titles can be found under the entry Genetics - Periodicals ?

    a. Genetic recombination
    b. Genetic origins of tumor cells
    c. Cytogenetics and cell genetics
    d. Heredity and human life

11. How many books in LIAS have the title Social welfare in Sweden ?

    a. Between 1 and 10
    b. Between 11 and 20
    c. Between 21 and 30
    d. Over 30

12. Who wrote the book Painters of the modern mind ?

    a. Alfred Moir
    b. Mary Cecil Allen
    c. Harald Keller
    d. Robert E. Stinson

13. Who wrote the book 47 creative homes that started as bargain buildings ?

    a. Herbert Wise
    b. Jean Brown Kinney
    c. Rita Reif
    d. James Ralph Dalzell

14. How many items written by Peter Maas are available in LIAS?

    a. Between 1 and 10
    b. Between 11 and 20
    c. Between 21 and 30
    d. Over 30

15. Which of the following books was written by John Cheever?

    a. The world of apples
    b. Falconer
    c. The enormous radio
    d. All of the above

16. Robert K. Massie wrote a book assigned the call number RC642.M38 1975. What is its title?

    a. The last courts of Europe
    b. Journey
    c. Nicholas and Alexandra
    d. Peter the Great, his life and world

17. Where (in what location) can you find a copy of the book From chips to systems by Rodney Zaks?

    a. Math
    b. Pollock
    c. Engineering
    d. All of the above

18. Where in Pattee Library can you find a copy of the title Fat paper?

    a. Central Pattee Level 4 Yellow
    b. East Pattee Fourth Floor
    c. Tower Room
    d. West Pattee First Floor

19. Where is the New Dell edition of the title Cat's cradle located?

    a. Pollock
    b. East Pattee Fourth Floor
    c. Rare Book Room
    d. Penn State Room

20. Where are issues of the title What's new in home economics located?

    a. All issues in East Pattee Third Floor
    b. East Pattee Third Floor, Current Issues in Periodicals Room
    c. All issues in Life Science Ref.
    d. East Pattee Third Floor, Current Issues in Life Science Ref.

21. What is the call number of the copy of The chemistry of the coordination compounds located in Earth & Min. Sci. ?

a. 541.6B15c
b. QD471.B23
c. QD471.A6
d. 541.6W46s2

Find the record for the title The allergy cookbook and then answer the following three questions.

22. What is the call number?

a. RM219.R8
b. RM221.C4S5
c. RM219.E45
d. RM221.A6L52

23. Which of the following items is shelved in the vicinity of your original title?

a. Nutrition and diet therapy
b. Allergy in theory and practice
c. Diet and resistance to disease
d. Biology of nutrition

24. Which of the following items is also shelved in the vicinity of your original title?

a. Attack on starvation
b. Changing food habits
c. Bland but grand
d. Diet, the way to health

Find the record for the title The avalanche enigma and then answer the following three questions.

25. What is its call number?

a. QC929.A8F7
b. QC928.7.W4
c. QC928.U7
d. QC929.D8N67

26. Which of the following items is shelved in the vicinity of your original title?

a. Dynamics of snow and ice masses
b. The avalanche hunters
c. Avalanche-diode microwave oscillators
d. Avalanche of April

27. Which of the following items is also shelved in the vicinity of your original title?

a. Ice and snow
b. Snow along the border
c. Snow camping and mountaineering
d. The slab avalanche

28. You have received an overdue notice for an item whose call number is LB3621.P73. What is the title of the book?

a. Journalism and the school paper
b. High school journalism
c. The student journalist and news reporting
d. The student newspaper

29. You have received a recall notice for the item whose call number is 665.3M34s. What is the title of the book?

a. The chemistry of linseed oil
b. Soybean for health, longevity, and economy
c. Soybean flour in milk replacement formulas for dairy calves
d. Soybean chemistry and technology

30. You have received an overdue notice for a book whose call number is GV995.C427. What is the title of the book?

a. Championship tennis by the experts
b. Arthur Ashe's tennis clinic
c. Quick tips from the CBS tennis spot
d. Teach yourself tennis!

TIME COMPLETED _____

FIRST-TIME USER REACTION TO LIAS:

SKILL SURVEY

The LIAS skill survey consists of 30 multiple choice questions. There is only one correct answer for each question. Take as much time as necessary to complete the survey. Although this is not a "timed test" we would like you to note the time you start and complete the survey. Your responses will be kept confidential and each respondent will remain anonymous when the data is analyzed.

DIRECTIONS

1. Write your **STUDENT NUMBER** in the space provided in the upper left corner of the survey form.

2. Write the **TIME YOU START** the survey in the space provided in the upper left corner of the survey form.

3. Begin the skill survey. Answer every question using LIAS. Circle the correct answer. Use either pen or pencil to complete the survey.

4. Write the **TIME YOU COMPLETE** the survey in the space provided on the last page of the survey form.

5. Return the completed survey to Mary Ellen Larson's office, General Reference Area, E108H Pattee.

— THANK YOU AND GOOD LUCK—

STUDENT NUMBER _____
TIME STARTED _____

FIRST-TIME USER REACTION TO LIAS:

SKILL SURVEY

1. How has the term Biological abstracts been used in the LIAS catalog?

   a. As title only
   b. As subject only
   c. As both a title and a subject
   d. As title, author, and subject

2. Which of the following names has been used as both an author and a subject entry?

   a. Joan Didion
   b. Paul Theroux
   c. Franklin P. Wilbur
   d. Gail Sheehy

3. Which of the following terms has been used as both a title and a subject entry?

   a. Modern art
   b. Political advertising
   c. Cross-country skiing
   d. Human experimental psychology

4. How many citations can be found in LIAS for the entry Experimental plant physiology ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

5. How many citations can be found in LIAS for the entry Anatomy, Human - Atlases ?

   a. Between 1 and 20
   b. Between 21 and 40
   c. Between 41 and 60
   d. Over 60

6. How many citations are found under the entry Pharmacogenetics used as a subject ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

Form C364

7. How many citations are found under the entry Standard oil company used as an author ?

   a. Between 1 and 15
   b. Between 16 and 30
   c. Between 31 and 45
   d. Over 45

8. How many citations are found under the entry Atmospheric chemistry used as a title ?

   a. Between 1 and 10
   b. Between 11 and 20
   c. Between 21 and 30
   d. Over 30

9. Which of the following books can be found under the subject entry Accounting ?

   a. Accounting for business combinations
   b. Accountancy and economic development policy
   c. Accountancy as a career
   d. Accounting for colleges and universities

10. Which of the following titles can be found under the entry Public administration - Periodicals ?

    a. Public administration and policy
    b. Administration in the public sector
    c. Canadian public administration
    d. An adventure in public personnel administration

11. How many books in LIAS have the title The creative society ?

    a. Between 1 and 10
    b. Between 11 and 20
    c. Between 21 and 30
    d. Over 30

12. Who wrote the book Radiation, genes, and man ?

    a. Bruce Wallace
    b. Richard Alan Morton
    c. James L. Brewbaker
    d. David Paterson

13. Who wrote the book 65 quality menus for quantity service ?

    a. George K. Waldner
    b. Harry Caleva
    c. Joseph G. Gregg
    d. John Wesley Stokes

14. How many items written by Edward Albee are available in LIAS?

    a. Between 1 and 10
    b. Between 11 and 20
    c. Between 21 and 30
    d. Over 30

15. Which of the following books was written by Sylvia Plath?

    a. Winter trees
    b. The bell jar
    c. Fiesta [illegible]
    d. All of the above

16. Colin Fletcher wrote a book assigned the call number QL337.K4F54. What is its title?

    a. The winds of Mara
    b. The complete walker
    c. The man from the cave
    d. Beneath the surface

17. Where (in what location) can you find a copy of the book Paradoxes of the infinite by Bernard Bolzano?

    a. Physical Science
    b. Math
    c. Engineering
    d. All of the above

18. Where in Pattee Library can you find a copy of the title Biological clocks and patterns?

    a. Central Pattee Level 6 Core
    b. East Pattee Second Floor
    c. West Pattee First Floor
    d. Central Pattee Level 4 Yellow

19. Where is the large paper edition of the title The house of the seven gables located?

    a. West Pattee First Floor
    b. Pollock
    c. Rare Book Room
    d. Penn State Room

20. Where are issues of the title American journal of economics and sociology located?

    a. All issues in Central Pattee Level 4 Core
    b. All issues in West Pattee First Floor
    c. Central Pattee Level 4 Core, Current Issues in Periodicals Room
    d. All issues in Periodicals Room

21. What is the call number of the copy of Laboratory fractional distillation located in Physical Science?

a. QD526.R6 1950
b. QD526.C33
c. 542.48C2171
d. 542.5P69

Find the record for the title Hearts and heart-like organs and then answer the following three questions.

22. What is the call number?

a. QP115.I58
b. QP111.3.H42
c. QP111.B6
d. QP121.A1R4

23. Which of the following items is shelved in the vicinity of your original title?

a. Glucose, insulin, potassium, and the heart
b. Physiology of the heart
c. Diseases of the heart
d. Mathematical aspects of heart physiology; 1973-1974

24. Which of the following items is also shelved in the vicinity of your original title?

a. Heart and sport
b. The heart doctor's heart book
c. "A heart for every fate"
d. The heart prepared

Find the record for the title The kingdom of the camera and then answer the following three questions.

25. What is its call number?

a. TR145.M65
b. TR140.W45N4
c. TR645.A35
d. TR145.B2

26. Which of the following items is shelved in the vicinity of your original title?

a. Camera, spade and pen
b. Camera across America
c. Photographic advertising from A-to-Z
d. The artistic side of photography, in theory and practice

27. Which of the following items is also shelved in the vicinity of your original title?

a. Pencil pictures, a guide to their pleasing arrangement
b. Photography of natural things
c. The pencil of nature
d. Nature photography around the year

28. You have received an overdue notice for an item whose call number is HF416.G6. What is the title of the book?

a. The Italian merchant in the Middle Ages
b. The two Italies
c. Private wealth in Renaissance Florence
d. Merchants in crisis

29. You have received a recall notice for the item whose call number is 643.31T365s. What is the title of the book?

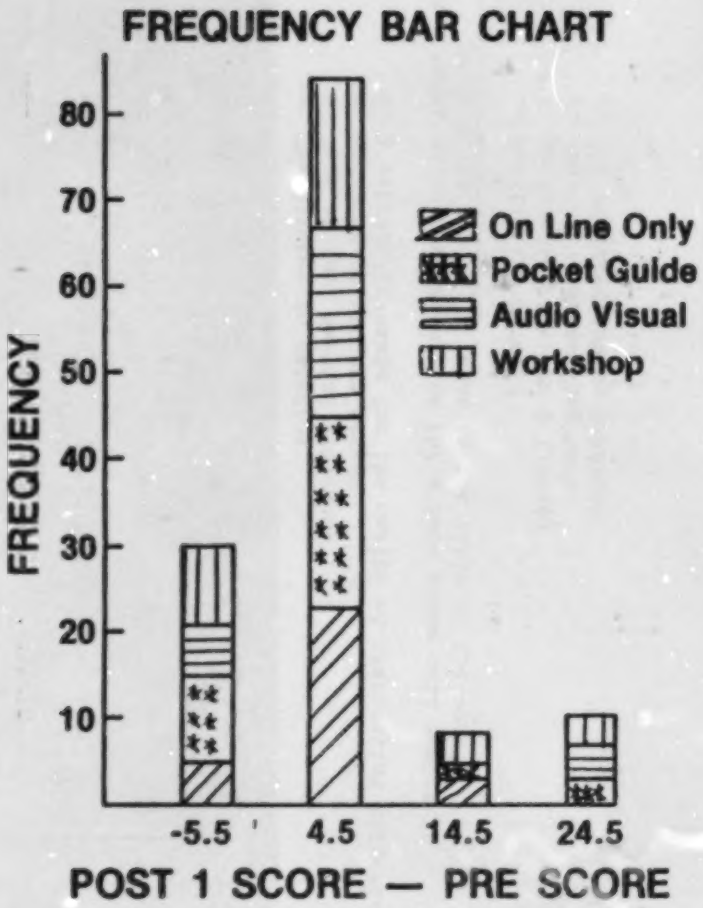
a. The kitchen in catering
b. Care of food service equipment
c. Handbook of kitchen design
d. A scientific basis for the design of institution kitchens

30. You have received an overdue notice for a book whose call number is GV199.6.J46. What is the title of the book?

a. Walking in the wild
b. Backpacking for fun & fitness
c. America's backpacking book
d. The hiking-climbing handbook

TIME COMPLETED _____

Chart 1


FREQUENCY BAR CHART
FREQUENCY
80
70
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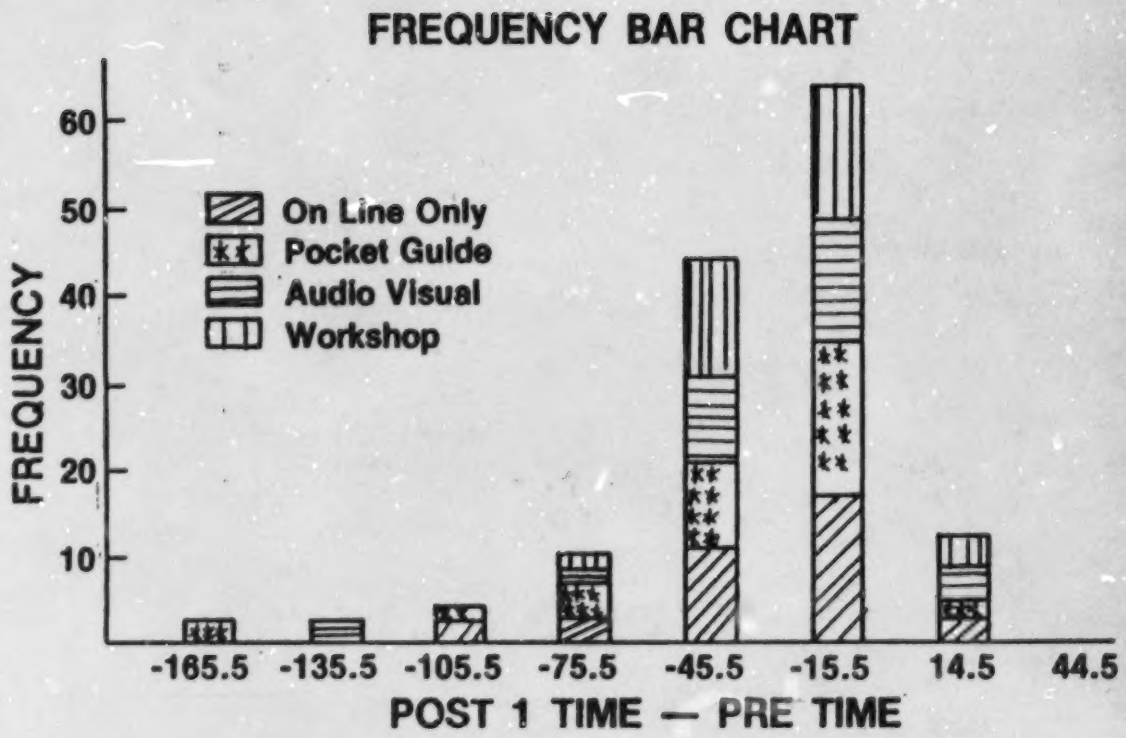
20
10
On Line Only
Pocket Guide
Audio Visual
Workshop
-5.5
4.5
14.5
24.5
POST 1 SCORE — PRE SCORE

Chart 2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FREQUENCY
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50
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30
20
10
On Line Only
Pocket Guide
Audio Visual
Workshop
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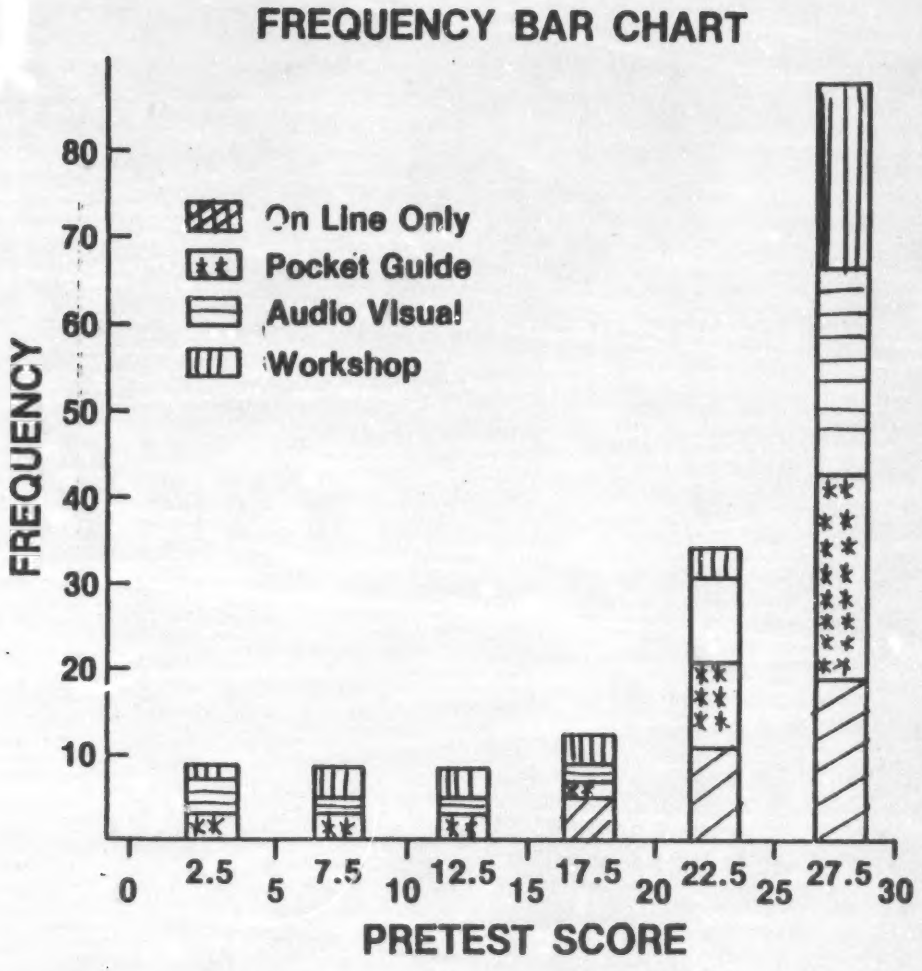
14.5
44.5
POST 1 TIME — PRE TIME

Chart 3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On Line Only
Pocket Guide
Audio Visual
Workshop
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30
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10
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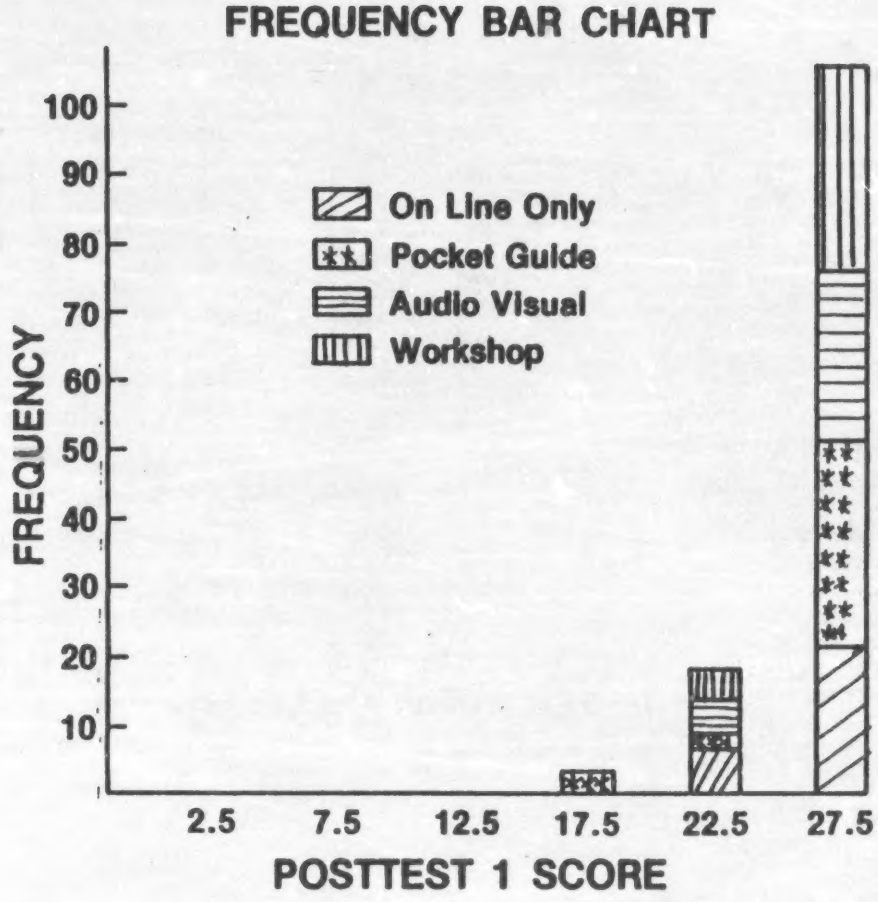
5
7.5
10
12.5
15
17.5
20
22.5
25
27.5
30
PRETEST SCORE

Chart 4


FREQUENCY BAR CHART
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60
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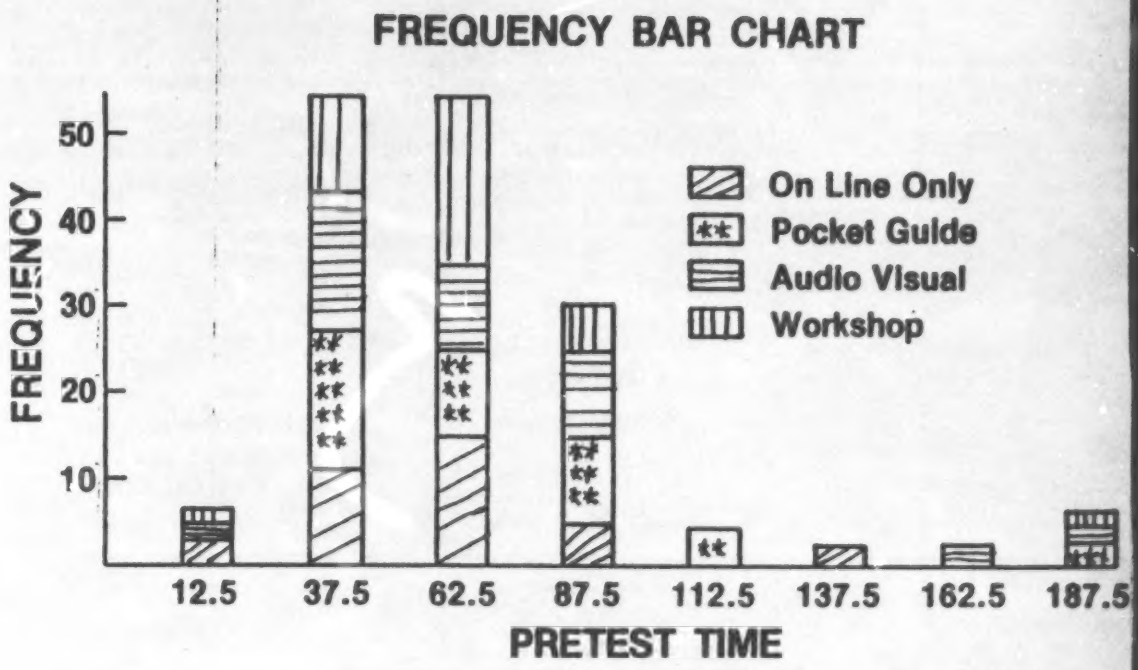
40
30
20
10
On Line Only
Pocket Guide
Audio Visual
Workshop
2.5
7.5
12.5
17.5
22.5
27.5
POSTTEST 1 SCORE

Chart 5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137.5
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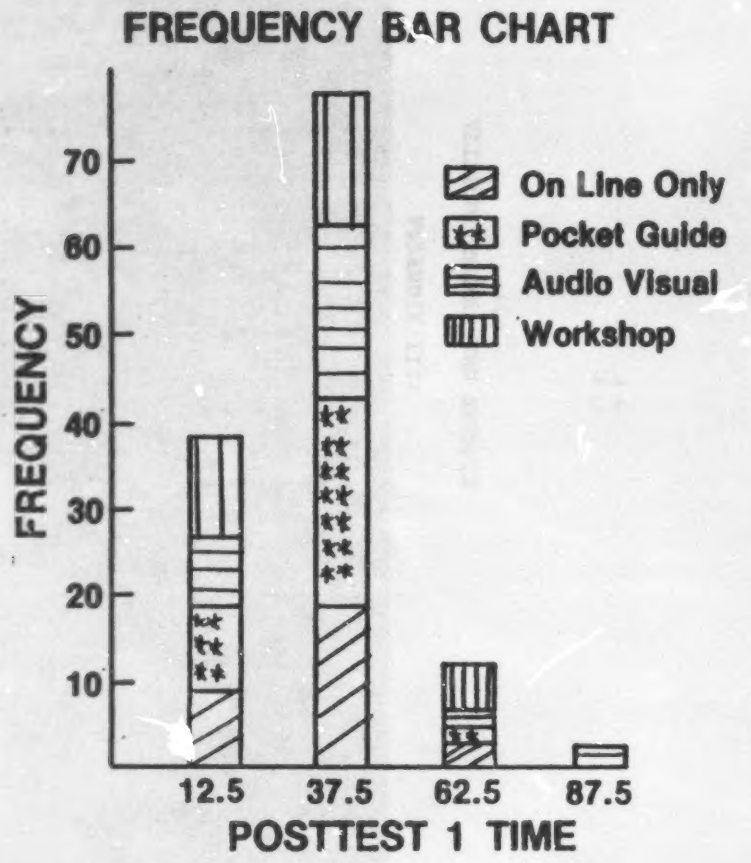
187.5
PRETEST TIME

Chart 6


FREQUENCY BAR CHART
FREQUENCY
70
60
50
40
30
20
10
On Line Only
Pocket Guide
Audio Visual
Workshop
12.5
37.5
62.5
87.5
POSTTEST 1 TIME

APPENDIX III:

ATTITUDE SURVEY AND RESULTS

FIRST-TIME USER REACTIONS TO LIAS

Please respond to questions 1 - 13 using the following scale:

A = strongly agree
B = agree
C = undecided
D = disagree
E = strongly disagree

1. Finding library materials in LIAS using the SEARCH command is easy.

2. If you only know the call number of an item, it is difficult to identify it in LIAS.

3. Understanding the display for a single book, journal or magazine is easy.

4. Understanding the display for a single journal or magazine is difficult.

5. Understanding the displays that show more than a single book, journal or magazine is difficult.

6. LIAS makes it easy to determine if a book is available for circulation.

7. It is difficult to return to a previous step in a LIAS search once you've begun the search process.

8. Once I know that there is a book in the library on my topic, I can use LIAS to easily determine if similar material is shelved nearby.

9. It is difficult to browse back and forth through several screens while searching through LIAS.

10. The instruction I received in using LIAS helped me to find information about library materials more efficiently.

11. I was unable to understand all of the terms that were used to describe LIAS in the instruction I received.

12. My instruction mentioned the key points that I need to know to understand LIAS.

13. I am confident that I can use LIAS to identify and locate materials in the library.

Please respond to questions 14 and 15 using the following scale:

A = Better
B = About the same
C = Worse
D = Can't decide

14. Compared to the card catalog in this library, LIAS is:

15. Compared to the COM catalog, LIAS is:

Please respond to question 16 using the following scale:

A = Very favorable
B = Somewhat favorable
C = Somewhat unfavorable
D = Very unfavorable

16. My overall or general attitude toward LIAS is:

Comments:

Attitude Survey: Summary of Responses
N=109

1. Knowledge of LIAS (Scale 1) out of maximum of 45 pts.

Online only	35.5	mean score
Pocket Guide	37.4	
Audiovisual	37.1	
Workshop	37.2	

2. Attitude toward LIAS instruction (Scale 2) out of maximum of 20 pts.

Online only	16.0	mean score
Pocket Guide	16.6	
Audiovisual	16.7	
Workshop	17.3	

3. LIAS vs. card/COM (Scale 3) Range: 2 (positive) through 8 (negative)

Online only	2.9	mean score
Pocket Guide	2.4	
Audiovisual	2.6	
Workshop	2.6	

4. General LIAS attitude (Scale 4) Range: 1 (positive) through 4 (negative)

Online only	1.1	mean score
Pocket Guide	1.1	
Audiovisual	1.1	
Workshop	1.1	

Scale 1 = Questions 1-9
Scale 2 = Questions 10-13
Scale 3 = Questions 14-15
Scale 4 = Question 16

BUDGET REPORT ARL/OMS GRANT

Total Budget	$2012.00
Expenses:	
Wages	647.58
Photocopying	146.58
Consultation by Janice Derr, Statistician	553.42
Total Expenditures	$1347.08
Balance (representing unexpended wages)	$ 664.92